



US009637019B2

(12) **United States Patent**
Bassham et al.

(10) **Patent No.:** **US 9,637,019 B2**
(45) **Date of Patent:** **May 2, 2017**

(54) **SYSTEM AND METHOD FOR CHARGING A
PLUG-IN ELECTRIC VEHICLE**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(75) Inventors: **Marjorie A. Bassham**, Burton, MI
(US); **Ciro A. Spigno, Jr.**, Waterford,
MI (US); **Brett T. Muller**, Milford, MI
(US); **Vernon L. Newhouse**,
Farmington, MI (US)

7,698,078	B2 *	4/2010	Kelty et al.	702/63
7,778,746	B2 *	8/2010	McLeod et al.	701/22
7,986,126	B1 *	7/2011	Bucci	B60L 3/12
				320/109
2001/0046884	A1 *	11/2001	Yoshioka	G01C 21/26
				455/564
2009/0210357	A1 *	8/2009	Pudar	B60L 11/1816
				705/412

(73) Assignee: **GM GLOBAL TECHNOLOGY
OPERATIONS LLC**, Detroit, MI (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 433 days.

OTHER PUBLICATIONS

Mio Technology, How does GPS work?, Aug 17, 2010 (provided by
wayback machine <https://archive.org/web/>), p. 1.*

(Continued)

(21) Appl. No.: **13/346,109**

(22) Filed: **Jan. 9, 2012**

(65) **Prior Publication Data**

US 2013/0175974 A1 Jul. 11, 2013

Primary Examiner — Drew A Dunn

Assistant Examiner — Zixuan Zhou

(74) *Attorney, Agent, or Firm* — Reising Ethington, P.C.;
Lionel Anderson

(51) **Int. Cl.**
H02J 7/00 (2006.01)
B60L 11/18 (2006.01)

(52) **U.S. Cl.**
CPC **B60L 11/1837** (2013.01); **B60L 11/1861**
(2013.01); **B60L 2240/62** (2013.01); **B60L**
2240/64 (2013.01); **B60L 2240/70** (2013.01);
Y02T 10/7005 (2013.01); **Y02T 10/705**
(2013.01); **Y02T 10/7044** (2013.01); **Y02T**
10/7072 (2013.01); **Y02T 10/7291** (2013.01);
Y02T 90/121 (2013.01); **Y02T 90/128**
(2013.01); **Y02T 90/14** (2013.01); **Y02T 90/16**
(2013.01); **Y02T 90/162** (2013.01)

(58) **Field of Classification Search**
CPC Y02T 90/10; Y02T 90/14
USPC 320/104, 109; 701/22
See application file for complete search history.

(57) **ABSTRACT**

A charging system and method that may be used to auto-
matically apply customized charging settings to a plug-in
electric vehicle, where application of the settings is based on
the vehicle's location. According to an exemplary embodi-
ment, a user may establish and save a separate charging
profile with certain customized charging settings for each
geographic location where they plan to charge their plug-in
electric vehicle. Whenever the plug-in electric vehicle enters
a new geographic area, the charging method may automati-
cally apply the charging profile that corresponds to that area.
Thus, the user does not have to manually change or manipu-
late the charging settings every time they charge the plug-in
electric vehicle in a new location.

14 Claims, 3 Drawing Sheets

